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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## SODA ASH AND SODIUM SULFATE IN FEBRUARY 1997

Natural soda ash production in February was 766,000 metric tons, 12% lower than the previous month's production, according to the U.S. Geological Survey. Ending inventories were estimated at 275,000 tons, a 16% decrease from that of the preceding month. Wyoming trona production in February was 1,270,000 tons. Total production of chemical caustic soda as soda ash equivalent, based on data from all three producers, was 19,200 tons in February.

Apparent consumption of soda ash for January was estimated at 557,000 tons, 14% higher than the January 1996 level of 490,000 tons. Exports and imports of soda ash in January 1997 were 262,000 tons and 8,930 tons, respectively.

The soda ash statistics for January 1997, compared with those of 1996, were as follows: production 14% higher, imports 10% higher, exports 13% lower, ending stocks 14% higher, and apparent consumption 14% higher.

**The average annual value of U.S. soda ash for 1996  
was \$82.60 per short ton.**

**For further information about the conference, see pages 2-3 and contact:**



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### CONFERENCE REGISTRATION INFORMATION

What: First International Soda Ash Conference  
When: June 10-12, 1997  
Where: Western Wyoming Community College  
Registration: Holiday Inn, June 9, 1800-2100 hours  
Fee: \$150

See page 4 for registration form.

Visit our conference website at:

**[http://minerals.er.usgs.gov/minerals/pubs/commodity/soda\\_ash/isac.html](http://minerals.er.usgs.gov/minerals/pubs/commodity/soda_ash/isac.html)**



## ROCK SPRINGS, WYOMING—JUNE 10 to 12, 1997

### COSPONSORS:

- UNITED STATES GEOLOGICAL SURVEY
- UNITED STATES BUREAU OF LAND MANAGEMENT
- WYOMING GEOLOGICAL SURVEY

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## 1<sup>ST</sup> INTERNATIONAL SODA ASH CONFERENCE

To commemorate the 50th anniversary of the beginning of the Wyoming natural soda ash industry, the U.S. Geological Survey, the U.S. Bureau of Land Management, and the Wyoming Geological Survey, are sponsoring a three-day international conference on soda ash to be held at the Western Wyoming Community College in Rock Springs, WY, on June 10 to 12, 1997. The meeting will include two days of formal presentations and poster sessions by some of the world's leading experts in the soda ash industry followed by a third day of field trips to see the trona mines, soda ash refineries, and local outcrops of the Green River Formation. Accommodations will be at the Holiday Inn in Rock Springs, where registration begins Monday, June 9. The conference is wide-ranging in scope covering several categories, including geology, mining, processing, markets, and environmental issues. Although the Wyoming trona district will be emphasized, papers on natural deposits elsewhere in the world are included. The speakers and titles of the papers to be presented are:

D. Kostick, U.S. Geological Survey, *History of the U.S. Soda Ash Industry*  
T. Leigh, Tg Soda Ash, Inc., *Overview of the Geology of the Wyoming Trona Deposits*  
J. Dyni, U.S. Geological Survey, *Exploration for Sodium Carbonate Deposits*  
G. Smith, U.S. Geological Survey, *Crystallization of Owens Lake Sodium Salts*  
G. Moulton and J. Fairchild, North American Chemical Co., *Economic Geology of Searles Lake*  
C. Zhang, Inner Mongolia Polytechnic Univ., China, *The Natural Soda Deposits of China*  
T. Murphy, U.S. Bureau of Land Management, *Terms & Conditions of the Leasing Process of Federal Land*  
H. Kemp, Wyoming State Land & Farm Loan Office, *Leasing State Lands*  
R. See and N. Brown, Union Pacific Resources, *History of UPRR Trona Leasing*  
W. Fisher, Consultant, *Trona and Oil and Gas Leasing Conflicts*  
M. Weller, Solvay Minerals, *The Anomalous Zone in Bed 17 of the Solvay Mine*  
R. Ferriter, Mine Safety & Health Administration, *Discussion of the Mine Collapse at Solvay Minerals*  
J. Case, Wyoming Geological Survey, *Subsurface Tectonic Deformation in the Green River Basin*  
E. Rosar and W. Kube, Consultants, *Solution Mining of Colorado Nahcolite*  
A. Ukwidwe and H. Haynes, University of Wyoming, *Solution Mining of Trona*  
G. Marlatt, Consultant, *Hydrocarbons Associated with Oil Shale and Trona*  
W. Hazen, Hazen Laboratories, *The Benetron Process*  
R. Aitala, Isonex, Inc., *Process Selection Criteria for Refining Trona to Commercial Products*  
R. Frint, *Evolution of Wyoming Soda Ash Processes*  
C. Cha, Univ. of Wyoming, *Microwave Induced Wet Calcination of Trona*  
D. Scriven, Western States Mining Consultants, *Trona Tailings Disposal Methods*  
C. Raleigh, Chem-Mineral Marketing Services and P. Harben, P.W. Harben Inc., *Soda Ash Goes Global for Growth*  
T. Whiteside, Harriman Chemsult Ltd., London, *Developments in the European Soda Ash Market - 1990-1996*  
B. Rischmiller, Brunner Mond & Co., *Soda Ash-A European Producer's Perspective*  
C. Watts-Jones, Chem Systems, *The Soda Ash Industries of Russia and the Ukraine*  
J. Chegwiddden, Roskill Information Services, *Asian Soda Ash Markets*  
R. Shamel, Consulting Resources Corp. *The Role of Soda Ash in the Chloralkali Family of Chemicals*

### Special luncheon and dinner presentations by:

Mr. D. George Harris, President, Harris Chemical Group  
Mr. John Wold, President Wold Trona Co., Inc., *A New Entrant's Perspective of the Wyoming Soda Ash Industry*  
Professor Donald Garrett, *Origin of the Wyoming Trona Deposits*

### Poster Sessions

S. Wiig, U.S. Bureau of Land Management and J. Dyni, U.S. Geological Survey, *Trona Resources of Wyoming*  
N. Brown, Union Pacific Resources, *Computer Modeling of Trona Reserves*  
P. Boni, Univ. of Colorado, *The Geology of Bed 17 in the Solvay Mine*  
Union Pacific Resources, *The Trona Story* - A 15-minute video  
Sweetwater County Historical Museum, Mobile trona display

### Field Trips

Trip 1: Underground tour of trona mine(s), Field trip leader Terry Leigh, Tg Soda Ash, Inc.  
Trip 2: Surface tour of a soda ash refinery(s)  
Trip 3: Outcrops of trona-bearing rocks of the Green River Formation, Bill Culbertson, U.S. Geological Survey  
**Additional papers and poster sessions will be announced in upcoming announcements.** (This revision 4/15/97)

# ***1st International Soda Ash Conference***

***Theme: Utilization of natural resources of sodium carbonate into the 21st century***

***June 10-12, 1997, Western Wyoming Community College - Rock Springs, Wyoming***

***Sponsored by:***

***U. S. Geological Survey, U. S. Bureau of Land Management, Wyoming State Geological Survey***

***Coordinated by: University of Wyoming Office of Conferences and Institutes***

A significant part of the expanding world market for soda ash comes from the trona district in southwestern Wyoming in the Western United States. Five mines in the district produce as much as 16.5 million metric tons of trona per year from underground mines reached by vertical shafts at depths ranging from 250 to 500 meters below the surface. About nine million tons of soda ash are produced yearly of which about one-third is exported to other countries.

The First International Soda Ash Conference (ISAC) sponsored by the U. S. Geological Survey, the Bureau of Land Management, and the Wyoming State Geological Survey is being held at Rock Springs, Wyoming, June 10-12, 1997 close to the trona district. The broadly based conference will include some of the world's leading experts of the soda ash industry who will be presenting papers on the geology, mining, processing, transportation, and marketing of sodium carbonate deposits. Although the Wyoming trona district will be emphasized, papers on natural deposits of sodium carbonate elsewhere in the world are included.

Two days of papers and poster sessions are planned, followed by a third day of field trips, including visits to a soda ash processing plant and underground workings at one of the trona mines, and a geology excursion to examine nearby outcrops of the trona-bearing rocks of the Green River Formation.

- ***For information regarding program content:***  
Dennis Kostick, USGS, Reston, VA (703)648-7715;  
dkostick@usgs.gov  
John Dyni, USGS, Denver, CO, (303)236-5544;  
jdyni@usgs.gov  
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ray\_harris@wsgs.uwyo.edu

- ***For registration information:***  
*UW Conference Office*, 1-800-448-7801, ext. 2 or (307)766-2124.  
Conference information is also available on the U.S. Geological Survey Web Site: [http://minerals.er.usgs.gov/minerals/pubs/commodity/soda\\_ash/isac.html](http://minerals.er.usgs.gov/minerals/pubs/commodity/soda_ash/isac.html)

## ***General Information***

- ***What:*** First International Soda Ash Conference
- ***When:*** June 10-12, 1997;  
Arrival and Registration: Mon, June 9, 1800-2100 hours at the *Holiday Inn*, 1675 Sunset Dr., Rock Springs, WY.  
Reception: 1900-2200 hours at the *Holiday Inn*.

- ***Where:*** Western Wyoming Community College, Lecture Hall 1302 (all paper presentations and posters)
- ***Publishing:*** The Wyoming Geological Survey will publish the conference papers in an ISAC Proceedings Volume which will be priced later.
- ***Conference Registration:*** Please register before May 15, 1997: Registration fee on/before May 15-\$150; after May 15 add \$50. The registration fee includes meeting, Tuesday evening banquet at the Holiday Inn on June 10, two lunches and breaks.
- ***Cancellation Policy:*** Cancellations received in writing on/before June 5, 1997 will be assessed a \$50 administrative fee. *There will be no refunds for cancellations received after June 5, 1997.*
- ***Fields Trips:*** Field trips will run concurrently, so please indicate your choice of trip on the registration form. (Each trip will leave the Holiday Inn at 0830 and return about 1530 hours. A minimum of 12 persons is required for each trip, otherwise, the trip may be canceled.)

**Trip 1.** Visit to the underground workings at one of the trona mines.

**Trip 2.** Visit to the soda ash processing plant at one of the trona mines.

**Trip 3.** Outcrop of trona-bearing rocks of the Green River Formation. Participants will examine rocks of the Wilkins Peak Member on the east side of the Green River basin.

- ***Accommodations:***  
*Western Wyoming College:* \$20-Single; \$10/person-Double (Rates are per night. Add \$3.50/person for linens and towels if needed. See registration form.)  
*Holiday Inn:* A block of rooms has been reserved for the special conference rate of \$50/night for single or double room. Call (307)382-9200 by May 15 to make your reservations. Be sure to mention the ISAC/Trona conference.  
*Comfort Inn:* Phone: (307)382-9490  
*LaQuinta:* Phone: (307)362-1770

- ***Sightseeing:*** For information about sightseeing in the area or visiting Grand Teton and Yellowstone National Parks, contact the Rock Springs Chamber of Commerce at:  
Phone: (307)362-3771  
Fax: (307)362-3838  
E-mail: [rschamber@wyoming.com](mailto:rschamber@wyoming.com)

## 1st International Soda Ash Conference Registration Form

### Please register by May 15, 1997

(One registration per form, form may be duplicated)

Name \_\_\_\_\_

Organization/Affiliation \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Daytime Phone \_\_\_\_\_

Fax \_\_\_\_\_

e-mail \_\_\_\_\_

☐ The University of Wyoming is committed to making this workshop accessible to all individuals. If you have a disability and require accommodation to participate in this activity, please check here. You will be contacted by someone from the Office of Conferences and Institutes to discuss your specific needs.

Healthy menu options are included, please check here if you prefer exclusively vegetarian meals. ☐

Roommate name for double room in WWCC residence hall: (MUST BE BY MUTUAL AGREEMENT AND FORMS SUBMITTED TOGETHER OR YOUR ROOMMATE WILL BE ASSIGNED.)

The Western Wyoming residence hall room rates are per person for the nights of June 9, 10, 11 and 12, 1997. Please check which nights you will be staying. 9 ☐ 10 ☐ 11 ☐ 12 ☐

**Fees:** includes reception on Mon., Tue. Evening banquet, 2 lunches & refreshment breaks

Registration: on or before May 15, 1997 .....\$150...\$ \_\_\_\_\_

Late Registration: **after May 15, 1997** add.....\$ 50...\$ \_\_\_\_\_

Additional Tuesday banquet tickets for guests \$19/person x # \_\_\_\_\_ of tickets = .....\$ \_\_\_\_\_

Field Trip #1: \$25/person x # \_\_\_\_\_ of persons = .....\$ \_\_\_\_\_

Field Trip #2: \$25/person x # \_\_\_\_\_ of persons = .....\$ \_\_\_\_\_

Field Trip #3: \$30/person x # \_\_\_\_\_ of persons = .....\$ \_\_\_\_\_

Western Wyoming Community College Residence Hall Rates:

• Double Rm. \$10/person x # \_\_\_\_\_ of nights +\$3.50\* = .....\$ \_\_\_\_\_

• Single Rm. \$20/person x # \_\_\_\_\_ of nights +\$3.50\* = .....\$ \_\_\_\_\_

(\*\$3.50 per person for one set of linens and towels)

**TOTAL ENCLOSED** .....\$ \_\_\_\_\_

**Make check payable to University of Wyoming**

**Mail check and registration form to:**

Conference & Institutes, P.O. Box 3972, Laramie, WY 82071-3972

**For information call:** (307)766-2124; 1-800-448-7801, ext. 2; FAX: (307)766-3914;

E-mail: rebecca@uwyo.edu (Registrations cannot be accepted via E-mail.)

**To register by phone or FAX you must use a VISA/MasterCard/American Express #**

Credit Card Name and # \_\_\_\_\_ Exp. Date \_\_\_\_\_

TABLE 1  
SALIENT SODA ASH AND NATURAL SODIUM SULFATE STATISTICS 1/

Period	Soda ash (Thousand metric tons)		Natural sodium sulfate (Metric tons)	
	Production 2/	Ending stocks	Production	Ending stocks
1996:				
January	762	287	26,800	18,200
February	814	329	28,700	18,000
March	789	257	32,400	20,700
April	855	215	24,200	23,400
May	876	260	15,500	11,300
June	885	284	26,400	14,700
July	850	296	21,500	12,300
August	847	264	24,100	15,700
September	857	223	26,000	16,400
October	909	290 3/	26,400	18,500
November	859	285	24,100	14,300
December	866	271	29,500	19,500
Total (Jan-Feb)	1,580	XX	55,500	XX
Total	10,200	XX	306,000	XX
1997:				
January	866	326 e/	24,800	15,700
February	766	275 e/	23,500 e/	16,000 e/
Total	1,630	XX	48,300	XX

e/ Estimated. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Production data includes soda ash equivalent from soda liquors only. Soda ash equivalent from mine water is not included. Soda liquors for the current year 1997 are withheld to avoid disclosing company proprietary data.

3/ Because of previously unreported inventory in remote locations by one producer, ending stocks are somewhat higher than the level of prior months.

TABLE 2  
U.S. EXPORTS OF SODA ASH AND SODIUM SULFATE 1/

(Metric tons)

Period	Disodium carbonate		Disodium sulfate				Total	
	Quantity (thousand metric tons)	Value 2/ (thousands)	Saltcake		Other		Quantity	Value 2/ (thousands)
			Quantity	Value 2/ (thousands)	Quantity	Value 2/ (thousands)		
1996:								
January	300	\$38,700	4060	\$317	108	\$43	4,160	\$360
February	314	42,100	14,000	1,040	212	88	14,200	1,130
March	270	35,900	2,000	172	2,350	576	4,340	748
April	349	45,300	8,260	646	31	16	8,290	662
May	217	29,000	104	17	63	38	167	55
June	337	43,800	13,300	1,290	43	17	13,400	1,310
July	315	42,000	12,500	695	29	20	12,600	715
August	392	51,100	2,440	189	6,620	956	9,060	1,150
September	329	44,400	1,690	151	23	8	1,710	159
October	392	53,600	2,060	210	119	679	2,180	889
November	255	34,800	1,190	140	108	545	1,300	685
December	367	47,700	14,300	1,250	103	36	14,400	1,290
Total	3,840	508,000	75,900	6,120	9,810	3,020	85,700	9,140
1997: 3/								
January	262	33,300	3,160	310	2,390	661	5,550	971

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Free alongside ship (f.a.s.) value at U.S. ports.

3/ February 1997 data not available at time of publication.

Source: Bureau of the Census, as adjusted by the U.S. Geological Survey, using Journal of Commerce trade data and information.

TABLE 3  
U.S. EXPORTS OF SODA ASH BY COUNTRY, 1997 1/

(Metric tons)

Country	January	Total quantity	% of total
Argentina	6,150	6,150	2
Belgium	6,000	6,000	2
Brazil	17	17	--
Canada	26,200	26,200	10
Colombia	9,380	9,380	4
Croatia	12,000	12,000	5
France	10,000	10,000	5
Guatemala	41	41	--
Indonesia	19,100	19,100	7
Ireland	589	589	--
Israel	6,980	6,980	3
Jamaica	1,540	1,540	1
Japan	20,100	20,100	8
Korea, Republic of	26,500	26,500	10
Malaysia	8,100	8,100	3
Mexico	29,300	29,300	11
New Zealand	60	60	--
Philippines	7,150	7,150	3
Saudi Arabia	8,000	8,000	3
Spain	9,600	9,600	4
Taiwan	25,300	25,300	10
Thailand	23,400	23,400	9
Turkey	5,030	5,030	2
Venezuela	1,990	1,990	1
Total	262,000	262,000	100

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

TABLE 4  
U.S. IMPORTS OF SODA ASH AND SODIUM SULFATE 1/

(Metric tons)

Period	Disodium carbonate		Disodium sulfate				Total	
	Quantity	Value 3/ (thousands)	Saltcake 2/		Other		Quantity	Value 3/ (thousands)
			Quantity	Value 3/ (thousands)	Quantity	Value 3/ (thousands)		
1996:								
January	8,130	\$1,140	12,000	\$1,120	4,070	\$276	16,000	\$1,390
February	7,400	1,050	10,300	966	3,260	279	13,600	1,250
March	9,460	1,330	13,500	1,150	2,920	220	16,400	1,370
April	8,510	1,200	11,200	993	1,950	186	13,100	1,180
May	8,440	1,130	13,700	1,330	1,690	184	15,400	1,510
June	8,770	1,200	14,400	1,400	2,250	342	16,600	1,750
July	8,630	1,180	9,940	987	3,800	405	13,700	1,390
August	8,310	1,140	11,700	1,110	2,940	270	14,600	1,380
September	10,500	1,440	14,400	1,400	1,550	193	15,900	1,590
October	9,340	1,260	12,200	1,200	1,300	163	13,500	1,360
November	10,000	1,380	11,600	1,120	1,460	173	13,000	1,300
December	9,450	1,290	12,800	1,320	2,270	292	15,100	1,610
Total	107,000	14,700	148,000	14,100	29,400	2,980	177,000	17,100
1997: 4/								
January	8,930	1,180	10,700	1,060	2,620	294	13,300	1,350

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes Glauber's salt.

3/ Customs, insurance, and freight (c.i.f) value at U.S. ports.

4/ February 1997 data not available at time of publication.

Source: Bureau of the Census.

TABLE 5  
U. S. APPARENT CONSUMPTION OF SODA ASH 1/

(Metric tons)

Period	Production	Imports	Exports	Net stock		Apparent consumption 2/
				Increase	or Decrease	
1996:						
January	762,000	8,130	300,000	--	19,000	490,000
February	814,000	7,400	314,000	42,000	--	465,000
March	789,000	9,460	270,000	--	72,000	601,000
April	855,000	8,510	349,000	--	42,000	557,000
May	876,000	8,440	217,000	45,000	--	622,000
June	885,000	8,770	337,000	24,000	--	532,000
July	850,000	8,630	315,000	12,000	--	531,000
August	847,000	8,310	392,000	--	32,000	495,000
September	857,000	10,500	329,000	--	41,000	580,000
October	909,000	9,340	392,000	67,000	--	460,000
November	859,000	10,000	255,000	--	5,000	619,000
December	866,000	9,450	367,000	--	14,000	522,000
Total	10,200,000	107,000	3,840,000	--	35,000	6,470,000
1997:						
January	866,000	8,930	262,000	55,000 e/	--	557,000 e/
February	766,000	NA	NA	--	51,000 e/	NA

e/Estimate. NA Not available.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Production plus imports minus exports plus or minus stock changes.

TABLE 6  
REPORTED CONSUMPTION OF SODA ASH IN THE UNITED STATES, BY END USE, BY QUARTERS 1/

(Metric tons)

SIC Code	End use	1995 total	1996				Total
			First quarter	Second quarter	Third quarter	Fourth quarter	
32	Glass:						
3221	Container	1,690,000	372,000	409,000	392,000	379,000	1,550,000
3211	Flat	979,000	218,000	252,000	261,000	275,000	1,010,000
3296	Fiber	214,000	59,500	58,600	58,600	59,700	236,000
3229	Other	248,000	66,100	60,700	60,100	60,300	247,000
	Total	3,130,000	716,000	780,000	771,000	773,000	3,040,000
281	Chemicals	1,650,000	385,000 r/	411,000 r/	444,000 r/	446,000	1,690,000
284	Soaps and detergents	783,000	204,000 r/	190,000 r/	201,000 r/	191,000	785,000
26	Pulp and paper	186,000	49,900	50,000	42,800	40,400	183,000
2899	Water treatment 2/	108,000	19,000	21,700	24,100	21,700	86,500
	Fluegas desulfurization	130,000	36,100	35,100	44,000	36,700	152,000
	Distributors	323,000	77,600	79,900	76,500	80,200	314,000
	Other	185,000	35,700 r/	37,100 r/	35,100 r/	37,300	145,000
	Imports 3/	82,700	25,000	25,700	27,400	28,800	107,000
	Total domestic consumption	6,500,000	1,520,000	1,600,000	1,640,000	1,630,000	6,390,000
	Exports 4/	3,600,000	903,000	987,000	1,040,000	1,000,000	3,930,000
	Canada	180,000	52,500	50,500	57,700	65,500	226,000
	Total industry sales 5/	10,100,000	2,430,000	2,590,000	2,680,000	2,630,000	10,300,000
	Total sales from plants	9,760,000	2,320,000 r/	2,620,000 r/	2,610,000 r/	2,590,000	10,100,000
	Total production	10,100,000	2,370,000 r/	2,620,000 r/	2,550,000 r/	2,630,000	10,200,000

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes soda ash equivalent from soda liquors and purge liquors sold to powerplant for water treatment. Sales of mine water are excluded.

3/ Data are from the Bureau of the Census and may vary from the quantity reported by the producer/importer. Actual imports are proprietary data but have been distributed into appropriate end-use categories and included in "Total Domestic Consumption."

4/ As reported by producers. Includes Canada. Data may not necessarily agree with that reported by the Bureau of the Census for the same periods.

5/ Represents soda ash from domestic origin (production and inventory changes) and imports and for exports. Includes soda ash sold by coproducers and distributed by purchasers into appropriate end-use categories.